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bourhood as it was supposed, in the tenth century, to have existed in the fourth century, when St. Patrick was said to have visited Dublin, &c.

Looking at the matter as a practical question, Mr. Clibborn continued his inquiries in Nassau-street and its neighbourhood, to trace, if he could, the ancient well of St. Patrick, which Dr. Rutty, in 1757, was unable to find; and he discovered that there were several wells in the neighbourhood, all claiming to be the original well. Having taken into account the claims of all, he ultimately came to the conclusion that a well behind the house No. 9, Nassau-street, now inaccessible to the public, but which was described as having been open to the public by means of a flight of steps from Frederick-lane, about 100 years ago, and then visited by believers in the efficacy of the water, had more pretensions to the title of being the old spring well of St. Patrick than any of the others in the neighbourhood. In this opinion he was strengthened by a map of the city of Dublin, which appears to be as old as 1710, and which has the site of St. Patrick's well on it. This was 100 years later than Speed's map, which does not extend so far east as the site of this well.

Having disposed of the question of the locality of the ancient "southern well of St. Patrick," the author drew attention to the interesting fact, that he found, as he went down Leinster-street, the supply of spring water appeared to be very great, and capable of being utilized for all purposes to any extent. From the traces of ancient baths and wells, and from the modern pumps in the locality, he was led to believe that there was a perpetual supply of water, which was in quality only inferior to that obtained in such abundance from Mr. Carton's pump in Halston-street, close to which he believed was the original well of St. Patrick.

Mr. Clibborn suggested that measures should be taken forthwith in this locality, as well as in all others throughout the city, where there is a similarly abundant supply of spring water, to put it within the reach of the poor, by means of pumps to which they should have access, without getting the leave of any one.

## MONDAY, JANUARY 23, 1860.

JAMES HENTHORN TODD, D.D., President, in the Chair.

Mr. W. R. Wilde read a paper "On the discovery of a Crannoge, called Cloneymore, in the county of Cavan," and, on the part of Mr. O'Brien, presented a number of antiquities found there.

The thanks of the Academy were voted to Mr. O'Brien.

Mr. E. Clibborn read the second part of his paper on the Wells attributed to St. Patrick, &c.:—

In continuation of his paper on the ancient wells in and near Dublin, attributed to St. Patrick, Mr. E. Clibborn explained that it appeared

to him that Jocelyn's legend, though of but little or no value for the biographical matter relating to St. Patrick, must be taken to be of considerable interest, not only as containing topographical notices of the wells attributed to St. Patrick, but also of the localities in which they existed. And further, as the legend, when published by Jocelyn in the twelfth century, must have conformed to the local traditions of the day, it might be taken as evidence bearing upon the topography of Dublin and its environs for probably one hundred years earlier. As it also appeared that there were topographical matters in the legend as it now stands, which could not have been in it in the twelfth century, as these were not older than the fifteenth or sixteenth century, it was clear that these had been inserted in the text by a late editor. So that, making all judicious allowances and corrections in the text of Jocelyn's manuscript which legitimate criticism would allow, we have in it, in the absence of all other testimony, an outline of a concurrent testimony, as to certain topographical matters relating to Dublin and its vicinity, extending over a period of nearly 500 years, or from the tenth to the fifteenth century, though the incidents in the legend should have, if real, occurred in the fourth.

The perfect adaptation of the topographical parts mentioned in the legend with those now existing in, and which must have existed near the site of the old city of Dublin before the low lands on the north side of the Liffey were reclaimed, led Mr. Clibborn to take the text of Jocelyn's legend to be a correct statement, as to other topographical facts which we could not now confirm; such as the existence of one or more of the ancient wells, which, it would appear from the legend, existed in or near Dublin.

There could be no mistake about the existence of a well called after St. Patrick, at Finglas, for such existed; but the legend said nothing about that well; yet it made it probable that a legend had existed in reference to that well, as well as to the locality of Finglas. The legend goes a step further; for it allows us to infer, that the woman at Ath-cliath, who complained to St. Patrick of the badness of the water there, had heard of his producing a well at Finglas, or somewhere clse. And thus, as it were, she was led to put it upon the Saint to prove his power at Ath-cliath, by making another well there, as he had at Finglas, or wherever else it had been mentioned that he had miraculously produced a good spring well—an event which the legend-writer appears to have considered of such minor interest, compared with the production of the two great wells or fountains of Dublin, that he has not noticed it at all.

As to the position of one of the two great wells attributed to St. Patrick in the legend, i.e. the northern well of Dublinia, it must have been at or near Ath-cliath; but as Ath-cliath was within a mile of a certain position on the Finglas road, from which the site of that village and of the city of Dublin could have been first seen by a person coming towards Dublin from the north; and as the limit of inhabitable or un-

flooded ground at high water came also within the distance of a mile from the same position, it is clear that we should look for the site of the northern well of St. Patrick at or near the village latterly called Oxmantown, which was in the sixteenth century included within the limits of the city of Dublin.

Though Oxmantown and the country near it, in modern times, was inhabited by Fingallians, so called, it did not follow that, antecedently to their settlement in that locality, an Irish colony, village, or town, did not occupy the same place, for it was the only position adapted for a village, as it was here the only stream of fresh water, the Brathogue, running into the Liffey from the north, existed. There was no choice left then for the site of Ath-cliath of the legend in the twelfth century, which must have been the same as that of Oxmantown in the sixteenth, as indicated by Speed's map of 1610, and Rocque's map of 1756. In the former map the track of the stream which passed near Oxmantown is given, and agrees perfectly with the statement in the legend as to its water at Ath-cliath being spoiled by the tide, which would still be true, if the tide were not kept out, and if the land on the south side of North King-street had not been raised above high water-mark.

In 1860 the water of the Brathogue, which formerly went to North King-street, runs into the main sewer in Upper Dominick-street, and finds its way down Lower Dominick-street, and not long since was used to supply a sort of canal or ornamental water in the centre of the old Mall in Sackville-street, but is now lost in the sewerage of Great Britain-street.

Returning to the topography of Ath-cliath in the legend, its distance from a certain point on the Finglas road, its position at or near the only stream on the north side of the Liffey, the low level of the bottom of that stream, at the site of the village, compared with the levels of the tides in Dublin Harbour, and the fact that at or near the locality thus indicated, we find a wonderful supply of pure spring water, prove, as far as can be desired, not only the locality of the Ath-cliath of the legend, but also indicate the immediate propinquity of the site of the ancient well attributed in the legend to the agency of St. Patrick.

The legend attributes this well to the Saint, though it does not name it after him. It is not distinctly stated that this well was the original well of St. Patrick, but it looks as if the legend contained words which distinctly claimed it to be such, and that the modern editor of the legend in the sixteenth century qualified them, so that little could be deduced from them which would have denied the honours then paid to the "Southern Well of St. Patrick in Dublin," which, in Jocelyn's time, had claims put forward in its behalf as the original well of St. Patrick, which Jocelyn's original text must have in his own day repudiated; and the usage of the term "southern," as applied to the well in or near the present Nassau-street, shows that the editor, in the sixteenth century, only imperfectly understood his business of falsifying and doctoring the old legend to make it fit the then actual condition of things.

Though Jocelyn's legend tells us nothing of the causeway or hurdle road over the ford leading to Dublin city from Ath-cliath, yet his usage of this name in relation only to the village on the north side of the Liffey is pregnant with valuable topographical information, and helps to get us over certain engineering difficulties in which the question of an

approach from the north to the city of Dublin was involved.

Everybody can understand what use a hurdle bridge would have been if over the low land, which could at certain times be forded or waded by passengers up to the deep bed of the river. Jocelyn's legend tells us nothing directly of the shallowness of the tide water from Athcliath to the bed of the river, but we know that must have been a fact, from the relation of other facts to this, and of this to others, so there can be no doubt about it. Neither does he tell us anything directly about the depth of the river close to the city, or of the force of the retiring tide after leaving the flooded lands above that point on the south bank of the Liffey, above which we cannot suppose the buildings of ancient Dublin to have ever extended. This point is evidently indicated by the old Bridge at the end of old Bridge-street. But both the returning tide and its great force, from the vastly greater quantity of water which in those times must have passed up and downwards in the same time that it passes now, when so much low ground is reclaimed, are indicated by certain events mentioned in the legend, as to the cause of the drowning of the daughter of the King of Dublin, and the drifting of her body to sea by the current.

So that, in one way or another, the number of direct and indirect facts and incidents which exist in Jocelyn's legend exhibit the most distinct knowledge of the topography of ancient Dublin in the twelfth century, or earlier. And, from the statements in favour of the northern well having been the original well of St. Patrick, it looks as if the original writer of the legend, whether he were Jocelyn or not, had belonged to Mary's Abbey, or to some other of the old religious foundations on the north side of the Liffey; and so he told the legend, to cover, at least, a claim to the well on his side of the river and its waters, to be as good, if not much better, for domestic purposes, than that of the southern well of St. Patrick,—a claim which we are disposed to grant, if the water of Mr. Carton's pump, in Halston-street, be so much better than the water of the southern or famous well of St. Patrick, which we believe it is, because it is used for a vast variety of purposes, for which the spring well water of the neighbourhood of Nassau-street is not fit.

The northern well is now accessible by means of a fine flight of steps, which also lead into a large vaulted chamber or crypt, which lies east and west; and though now, to a great extent, filled up with old sawdust, and timber here stored, has clearly a church character in the semicircular arching of the roof, and the careful finishing of the openings in the roof, to admit light and air, and also in the lateral arches which

lead off right and left, like chapels.

It really looks like a church in a catacomb, or crypt, over which a church might have been erected, but over which none appears to have been ever intended, for the openings in the roof are a development of

an original idea of the party who constructed the building.

Never having visited the churches in the Roman catacombs, I am unable to follow out the analogies, if such exist, between this structure and those cavities believed to have been used as churches in the Roman catacombs; and, indeed, till the great vault is cleared out, and the vaults adjoining it examined, it would be presumptuous to volunteer any opinion as to the original use of this curious place, which may have been one of a class used for ecclesiastical purposes, as two others like it, with wells, are said to exist in Dublin.

It is worthy of notice, that in Jocelyn's legend there is no remark which would enable one to exactly place or find the old or northern well of St. Patrick, or, if there was in the original text, his editor in the sixteenth century has expunged it. His interests were clearly connected with the southern well, and the doings at it; and hence it is probable he may have ignored facts, which might explain to us the nature and uses of the extraordinary vaulted chamber, near to which the ancient well exists, which we would claim as the ancient or original well of St. Patrick at Ath-cliath, afterwards Oxmantown, and, finally, the northern part of the city of Dublin.

In an economic point of view the author considered the ancient well as the exponent of the natural or original supply of pure spring water, not only of its immediate neighbourhood, but of the surrounding district, probably extending a considerable distance from it, where an abundance of spring water exists,—not so pure as that found in Mr. Carton's pump, near this well, which may now be considered the fountain-head, but pure enough, making allowances for infiltration, &c., as to indicate a connexion with it and many pumps in the north side of Dublin, which have an abundant supply of water, the quality of which appears greatly to depend on the care taken of them, and the extent of their usage.

The notices of the southern well of St. Patrick, in Jocelyn's legend, are of little practical application in an inquiry as to the locality of that well, except so far as his notices of the northern well are made by his later editor to apply to it, and so ignore the very existence of the other well, where we are to infer, in the sixteenth century, little or nothing of a public nature occurred to attract attention, nor would it have been likely, for at that time those old Irish influences in favour of St. Patrick, and his legends, had been lost or ignored in the neighbourhood of St. Mary's Abbey, near whose limits the ancient well in St. George's-hill was situated.

In the sixteenth century, in its own locality, it may have ceased to be known as St. Patrick's well, or a well dedicated by that Saint to St. John the Baptist. There is a tradition in the neighbourhood, that the

well in George's-hill was latterly dedicated to St. Anne, which may have arisen from the name of a street of this name near it. Were this so, the great vault near it may have been called St. Anne's Church. The name, George's-hill, where the great vault comes close to, may indicate that, at one time, it might have been dedicated to St. George by the English residents in this locality, though at first, the probability is that the well, and the vault near it, if originally intended as a baptistry, or place of worship, may have been dedicated to St. John.

As to the exact locality of the southern well of St. Patrick, which was open, and acknowledged as such, in 1728, when its water ceased to flow, but little need be said, though in 1757, Dr. Rutty, in his Synopsis of Mineral Waters, published in that year, says as much, as if it was then extinct, or could not be found. Its locality was indicated by the name of St. Patrick's-well-lane, which is given to Nassau-street, and Leinster-street, in Brooking's Map of Dublin, dated in 1728, the year the well dried up, though it did not then cease to exist, for we are informed by Mr. Gilbert, in his History of Dublin, that the Corporation made an attempt, in 1731, to restore the well. That, however, appears for several reasons to have been abortive, and very shortly after the well must have fallen into disuse, as Dr. Rutty, whose inquiries about wells in Dublin extended over several years before 1757, did not get access to this well, though he examined wells in its neighbourhood, the water of which he analyzed; while the water of the well in George's-hill, unless he considered it "Mary's Abbey" water, he also failed to notice, possibly because the two wells were hid or preserved in vaults or crypts, which were then in the possession of individuals, who may have denied access to them for some years.

It looks as if the ultra English feelings which appear to have influenced the Corporation of Dublin, and the inhabitants of the neighbourhood of the southern well of St. Patrick, and which led them to change the name of St. Patrick's-well-lane, when the well existed, to Nassau-street, also led them to shut up, or, as it were, hide the well, and make nothing of it, and, especially as it had failed to give that great supply of water which recommended it to the Corporation of Dublin and the citizens, formerly, as a sacred and abundant supply of wholesome spring water. So great was that supply, we may infer from the later version of Jocelyn's legend, that it was considered the fountain of Dublin. In 1728, it ceased to have any pretensions to that title, and it does not appear to have recovered itself in 1731, or afterwards.

Judging, however, from many facts stated in the paper, the author concluded that the main supply of water still existed, but that it developed itself lower down the street than before 1728, and might be found now in any quantity in the College Park, Leinster-street, &c., and might be considered as indicated by the main streams from the drainage operations in the College Park, and the numerous excellent pumps, wells, and old baths, which, till lately, existed in this locality, which appears to be placed over a great fracture or crack in the calp rock,

through which the water from the Dublin mountains appears to force itself to the surface of the earth.

The ceasing of the stream or great supply from the old locus of the well of St. Patrick, in St. Patrick's-well-lane, or Nassau-street, and the appearance of so much water at a lower level, in the continuation of the same line of street, may indicate that the crack in the calp rock has closed towards the west, and opened towards the east, from whence, latterly, several overflows of water have occurred without apparent cause, possibly in connexion with slight earthquake pulsations or movements, some of which have been noticed, suggesting the possibility that the change of the locus of the adit of the spring water, which originally took place apparently behind the house No. 9, Nassau-street, has now, in a great degree, gone towards Leinster-street; for the wells behind Nos. 9 and 15, and in Morrison's Hotel, at the corner of Dawson-st.—all claiming, with the well on the opposite side of the street, accessible from the Provost's garden, to be the veritable southern well of St. Patrick—never now overflow, or produce a constant stream, and that a large one, too, which the extant notices of the southern well of St. Patrick lead us to believe existed before 1728; just such a stream of water as, we may infer, runs, in a great measure, to waste into the sewerage of the lower parts of Leinster-street, &c.

It is this supply of water, not long since utilized in the College Park, in the baths, and wells, and the pump wells outside the College walls, we would propose more generally and publicly to utilize, by means of public pumps, to which all might have access. In the same way, we would propose that the water belonging to the ancient supply of the northern well of St. Patrick should be more generally utilized by means

of public pumps.

The same plan the author would extend to the immediate locality of the St. Patrick's well, which, till lately, was accessible in the cathedral church of St. Patrick; and also to the waters of all the ancient holy wells in other parts of the city, north and south. And thus it is to be hoped a great public benefit (which has, by sufferance of Mr. Carton, Mr. Anderson, Mr. Lalouette, and others, on the north side of Dublin; and of Mr. Nichols, Mr. Farrell, and others, on the south side; and of the Linen Hall, the College, the Bank, the Mansion House, the Royal Dublin Society, been allowed the public, more or less) should be again put on the ancient footing; and all be allowed free access to the old spring water, which is everywhere so abundant beneath the subsoil of the city.

The general elevation of the "plat" of the city has apparently lowered the overflow levels of the natural springs, the water of which is now generally accessible only by means of pumps, which it is proposed to place in many places of the city, where they may be accessible to all, at all hours, and free from any hindrance of neighbours or others.

Mr. Clibborn concluded with a hope that, if this were done, health, morality, and economy would be greatly promoted within the city; and

that an enormous saving might be effected in the present consumption of pipe water; so that the spring-well water of the several St. Patrick's well districts, as well as that of other ancient well districts in Dublin, might become a great supply of water in aid of that now derived from the Dodder and the Grand and Royal Canals; and the present demand for good drinking water, and water for other purposes, in a great measure, locally, if not generally, met, simply and economically, by the public utilization of the spring-well water of Dublin.

Lord Talbot de Malahide exhibited a peculiarly shaped stone hammer, found at Glencoy, county of Antrim.

Mr. W. R. Wilde exhibited two drawings, representing celts with handles, taken from sculptures on stones near Vannes, Britany.

## MONDAY, FEBRUARY 13, 1860.

JAMES HENTHORN TODD, D. D., President, in the Chair.

JOHN KELLS INGRAM, LL. D., was elected Secretary to the Council, in the room of the Rev. J. H. Jellett, resigned; and James Haughton, Esq., was elected a Member of the Academy.

Dr. Robert M'Donnell read a paper-

ON THE FORMATION OF SUGAR AND AMYLOID SUBSTANCE IN THE ANIMAL ECONOMY.

At the meeting of the Academie des Sciences held on the 23rd of March, 1857, Professor Bernard read a memoir upon the physiological mechanism of the formation of sugar in the liver. In this communication he announced the discovery of a particular substance formed by the liver, readily changed into sugar in the presence of certain ferments, and hence named by him "glucogenic matter." He asserted that in animals fed exclusively on meat, the liver, to the exclusion of all other organs in the body, possessed the power of making this substance, a non-azotised compound, analogous to starch, and, like it, convertible into sugar.

Hensen, somewhat prior to Bernard, and quite independently of him, had isolated this substance, the discovery of which, without doubt, constitutes one of the most important facts of animal physiology. Its discovery excited a very lively interest in the scientific world; and physiologists have since very warmly discussed the following questions regarding it:—

1st. Has the liver the power of forming it from azotized compounds?
2nd. Is the liver endowed with the function of converting it into sugar during life and health?

3rd. Has the liver the exclusive privilege of forming it, or is it met with in other tissues and organs?